

## Service Tips

### Minolta

#### ALL MODELS WITH SENSOR ARMS

If you're tired of replacing the paper size sensing arms when they blow, there is a simple procedure to negate this function and end your CF problems forever. Disconnect and remove the arm assy from the machine. If you're REALLY sick of CF's, snap it in two with your bare hands! ARGH! The plug to which the arm was connected has 6 wires: Yellow, green, blue1, blue2, blue3, blue4 (in that order) Simply use two staples (or equivalent items) in this plug to short: GREEN- BLUE1- BLUE3 together you could also cut the male plug off the arm and tie those wire together (this will trick the machine into thinking the arm is in the home position at all times and eliminate CF code) Unplug the solenoid. Then, use the User Program mode to set the machine to MANUAL paper select as the default or else it will always think there's an 11x17 original on the glass. All Done!

#### GENERAL

#### ORIGINALS STICKING TO ORIGINAL GLASS Use Rain-X

#### BROKEN ACTUATORS

Instead of leaving these machines down try using a paper clip to fashion a new arm/lever. The first few times will take a while to do. I kept a machine running for two weeks using this trick until the part arrived. And the customer was happy. It probably would still be working today if I did not replace it with the OEM part.

#### WHY DO MINOLTA COPIERS ACT SO STRANGE?

Lets take some of the mystery out of these bad boys. One of the major reasons for all the cpu lockups, erratic behavior and strange error codes is neutral line switching used on almost all Minolta products. All components are energized at all times with a ground applied to turn it on. These machines also have board power at all times, even with power switch off. So what you say? The trouble starts with spikes, line noise, low voltage, and lets not forget lightning (I live in the lightning capitol of the world). When you consider logic levels of 1 to 5 volts are responsible for all operations and cpu decisions, a few stray volts through the neutral line is all it takes to produce a service call. I have also repaired many machines with a dmm connected to neutral and ground at the outlet, finding 2,3,4 or so volts there when there should not be any. Minolta says anything over 5v is a problem but I find the fun starts at about 1.5v or so. Corona blocks are also famous for upsetting cpu,s, but don't overlook the customers outlet.

#### CROSSOVERS

The Minolta EP 2152pro, EP 2152pro, Olympia OL 1501F, OL 1502F Are all the same machine, The Sanyo Z80 is the same machine from the optics up, all parts are inter-changeable. The feeder is 100% the same and can be swapped. You can find these Sanyos dead with either a bad power supply or a broken gear in the main motor transmission. The motor is about \$300.00 and the gear is only available with the entire assembly. If you have a old Sanyo 70 the gear is the same its transmission.

#### CLUTCH PROBLEMS

If the toner collecting box overflows, toner falls onto the chain, which then drops toner onto clutches throughout the machine. This causes slipping problems.  
Clean clutches and drive chain after replacing box.

#### BLACK BANDS

For black bands running across the copy (front of copier to back) always check the drum ground!  
Sometimes the problem is internal in the drum itself!

### CF Codes

The MAIN reason for CF codes is simply.....the user. If the top is left open, the detection arm solenoid stays energized and overheats. This causes 90% of CF codes.

### AD-1

Strange electrical problems, such as malfunctioning sensors or unusual behavior may be caused because the "end-stop" motor (the motor in the lower section of the duplex holding tray) may be faulty. If you smell a burnt electrical smell (i'm sure we all know the smell) around the AD-1 PCB, it may be already too late to prevent the harm caused by this motor. Remove the top section of the AD-1 and stick your nose near the motor in the bottom section, if it smells funny, replace it. If your duplexer still doesnt work, try another PCB. DO NOT try another PCB before replacing the motor with a as you may fry the new PCB. Take it from me, I cooked 3 AD-1 PCB's before I zero'd in on the Hoseden motor (big surprise eh?) which was the cause. Fortunately, scrap AD-1's are somewhat plentiful.

### AD-2/AD1

Problem: CD codes after replacing door hinges

Solution: AD1 and 2 hinges are NOT interchangeable. If you install 2 hinges on AD1 you must also replace the door with an AD2 door

### AD-3/AD-5

#### JAMS

Problem: Jams at feed/separator roller

Cause: Too much pressure on the feed and sep. rollers.

Solution: Put some folded paper between the bolt and tab on the exit ramp of the duplex unit.

Problem: Intermittent jamming while feeding into duplex unit.

Cause: Pinch rollers on left side lose tension.

Solution: Bend the pinch roller holders closer to the copier. This prevents the paper from dropping down and interfering with the timing.

Problem: Intermittent jamming feeding into duplex unit.

Cause: Missing holder in duplex unit. Part# 4425-3997-02 stopper. This part occasionally falls out during replacement of the duplex mylar. Located just in front of the mylar hold down.

Solution: Folded paper makes a good fix until part can be replaced.

Just make sure the actuator stills moves but does not slide.

### AFR-1 FEEDERS

Problem: paper only exits halfway causing random jams.

Solution: clean both one-way bearings and shafts on left rear drive section near drive motor.

### SKEWED FEED

Clean the primary & secondary feed tire shafts and the one-way bearings inside the feed rollers. If this doesn't cure, replace the secondary and then the primary feed rollers (not just the rubber skins). New style feed tires have a blue clutch insert which faces the rear of the machine. Old style has a white clutch insert which faces the front. Also the feed-in clutch goes bad on these.

### EXIT JAMS

Paper not exiting completely. When cleaning or replacing one-way pulley doesn't cure totally, replace the shaft too.

### EXIT ROLLER

The exit roller on the AF1, part number 1266-1701-02 has to be replaced every time the little orange "O" rings break because Minolta will not sell the little orange "O" rings separately. Well, I've found a source for the "O" ring so you won't have to charge the customer so much for such a simple

thing. Just go to your nearest HOME DEPOT, or any other plumbing supply source and pick up the NUMBER 11 "O" ring. They only cost 24 cents each.

They are black, not orange, so you should replace both of them while you are at it, but they are a perfect fit work like a charm.

#### DOCUMENT RECOGNITION

Symptom: Will not recognize original after feeder has been used. If machine is turned off and back on you will get an open feeder if paper is left in original guide.

Cause: Size reset switch on copier not being energized by magnet on feed unit.

Solution: Shim magnet on doc feeder so magnet protrudes below the edge of the holder.

#### AFR-3

Problem: Misfeeding at T/U

Cause: Not enough pressure at the T/U roller.

Solution: Remove DF belt & T/U assy. from the feeder frame. There is a metal strip above the roller. Bend this down towards the roller and you will have very few problems with misdeeds here again.

Problem: Misfeeding at exit. Paper not moving after it stops ½ way out when the feeder puts two 8½ X 11 sheets on the glass at the same time.

Cause: Some laser printers leave an oil on the paper that contaminates the exit rollers and causes them to slip.

Solution: Under user choice turn mixed original detect "on." This will only feed one sheet at a time onto the glass. Then it will feed the original all the way out in one shot. The copier will still copy at the proper speed but it will seem slower.

#### AF-5 and AFR-12

Problem: Double feeds

The problem is the material used on the separator pads. Remove the gray material and get yourself some AFR7, 9 pads part#4408-0751-01. Remove the material from these. You will have to trim just a hair of the edges. Cement them to the AF5-AFR12 pads#4474-0217-03 and you are good to go.

#### DOC FEEDERS

##### INTERMITTANT JAMS

Make sure that the paper sensors are adjusted properly. BUT, the sensor adjustments procedure in the Minolta Tech Manuals is misleading. The manuals tell you to put paper under the sensors and adjust for the HIGH (4 VDC). If you do it that way, you will get all kinds of problems because the LOW (Under 1.0 VDC) is too far off. Try adjusting them this way: DO NOT put anything under the sensor, adjust the POT for the LOW. Put your meter on the test points and set the voltage for about .85 VDC. This has worked every time for me.

#### CLEANING BLADES\*

The following models use the same minolta 410 cleaning blade; 415, 425, 4230, 4233, 4300, 4301, 5400, 5401, 5420, 4320, 4321, 5320.

\*There is a tip that states Minolta cleaning blade compatibility from the 410 all the way up to the 5420. This is WRONG! I am not sure on the exact compatibility (I know 4300 and 5400 are the same) however the 4233 IS NOT THE SAME AS THE 5400! While the widths are the same, the length of the blade is several mm longer for the 5400. Use the 4233 blade on 4300/5400's at YOUR OWN RISK -- it will fail prematurely, guaranteed.

#### GENERAL FUSER

It is common for Minolta copiers to blow thermal fuse and there might not be any problem with the fuser

section. Try an aftermarket thermal fuse with longer leads. Get rid of the clamps and wrap the leads directly around the screw. This really cuts down on blown thermal fuses.

#### GENERAL - FULL SIZE

##### JAMMING

Most later Full sized Minolta copiers.

Transparencies and double sided copies jam at exit.

Cause: Paper not actuating exit detect switch

Reason: The metal plate which holds the exit switch bends upward away from the paper path.

Solution: Form the mounting plate(s) downward into the paper path. This will cause the switch to be actuated properly

#### MINOLTA/OLYMPIA

##### DV UNIT UPGRADE

A new service info sheet from Olympia came in just a few days ago (probably the same for all Minolta equivalents): Series 14xx - 18xx problems with developer falling out of the hopper. the developer roller agitation shaft was changed from magnetic iron to non magnetic stainless steel to prevent developer getting stuck and then damaging the bushing. According to Olympia this usually occurs on machines with 100k copies and more.

##### MINOLTA ADF

Intermittent electrical faults.

Usually caused by broken wire in the harness between ADF and m/c. If not then look at ADF power supply.

##### Minolta SSR's

A good way to check the solid state relay is to disconnect the negative DC side of the relay and short the relay to frame ground. This should light the fuser lamp.

##### AFR 1000

Problem: Skewing

Solution: Replace the double feed prevention plate with part Number: 4475-3315-03

##### AFR-9

Problem: Severe jamming @ feed tire and separator pad area

Solution: Kick some one in QA, from the factory the rubber is installed backwards on the feed roller hub.

The saw tooth tread repels the paper and also prematurely wears out the separator pads, no to mention customer complaints about that squealing noise.

#### SORTER FOR CS PRO SERIES MACHINES

##### BLOWN FUSE ON PWB-A

This occurs more then I care to admit. Staples are removed above the sorter and they drop down through the sensor holes onto PWB-C. To get to this board the easy way. Remove the left hand panel (one towards the copier) and hole punch catcher if applicable. Once removed a long Philips can be used to remove the board and holder together. If you just replace the fuse you will eventually blow PWB-A. To prevent staple from getting in there use some foam rubber to build up the sides around the holes.

##### CS PRO'S WON'T MAINTAIN TONER RATIO?

Seen this on mainly CS Pro machines but could happen on any. The ATDC wiper becomes worn as well as the ATDC sensor itself. Use scotch tape to reinforce the mylar until you can replace the agitating shaft and ATDC sensor.

### CS Pro 1030

Problem: Machine dead. Main fuse in power supply blown.

Cause: Upper fuser roller does not have a heat lamp !!

Inside the aluminum ufr is an insulative Mylar, a conductive coating is applied over this and brass end caps are wedged on. Current flows through the caps across the conductive coating and heats the roller, with the mylar insulating it from the roller. This also has bushings with a graphite core, as the graphite wears and the powder coats the side of the bushing, the current will suddenly arc through the mylar, to the aluminum roller, into the graphite bushing, across the powder residue and to the frame, this becomes the path of less resistance. This also could potentially mean that some ufr's out there may be working fine but already have the potential of 120 vac across the surface of the upper fuser roller !!

### CS PRO 2050/3050/4050

Problem: Heat from fuser unit turning panels yellow, drying out oil rollers and destroying upper fuser rollers. This is caused by poor ventilation in the fuser area. The fuser fan stays on low and I mean LOW speed until the print key is pressed.

Solution: Go to PWB-A, connector PJ19, pin 4. This is a 4 pin connector. The mark is numbered right to left clip the blue 5VDC wire at PJ19 pin 4. This will keep the fuser exhaust fan on high all the time, as long as the machine is on. BE WARNED, with the fan on all of the time, the ozone filter will get clogged with dust; check it every service call, it's cheaper than an upper roller. . Personally, I throw the filters in the trash if the machine is in a well ventilated area.

### CS PRO 3050/4050

Problem: Very light copies and premature drum failure

History: CS PRO 30/40's have a process called image stabilization. The cpu considers the number of copies on the drum in relation with lamp voltage. Executing F5's on these machines is VERY IMPORTANT. There is a lot more to it than that but I'll keep it brief. After replacing the drum you must go the PORT OPTIONS screen in service mode. Cue the last page and select DRUM COUNT. You must clear this counter and press the EXIT key to exit out of port options. Failure to exit correctly will reactivate your previous drum count. After that select TECH REP MODE and run an F5. Exit tech rep mode and go to LEVEL HISTORY. You will see two Vg levels, these are you initial(after new drum or memory clear) and current drum voltages. CS PRO's should never have a initial Vg above 550. Minolta came out with a bulletin telling us to reset drum counters and run F5's to boost poor copy quality. THIS IS A BOGUS CLAIM!!! Doing this will cause Vg's to jump to 610, 670, 720 and as high as 760. This will cook a new drum, especially Katun drums. If your unit cannot achieve an initial of 550 go to ROM VERSION in service mode. Check the MASTER. It should be a level 21 eprom that reads like this:  
MASTER: 1134-50G0-21-0. Most older units are level 8 or 18. Eprom 21 keeps the initial Vg level at 550 when added after a new drum and starter and clearing drum and starter counters in port options menu.

The current Vg will increase with drum age. Image stabilization will calibrate the rest. If you need this eprom the Minolta number is:

3050 1135-01 KIT

4050 1134-01 KIT

The kit contains 1 PWB-A, 2 PWB-B, 1 AFR9 and 1 Sorter EPROM's). Sorry this is so long, actually this is the short version but anyone with 30/40 cq problems will appreciate this.

### 3050/4050 Drums

I've visited a couple of after market sites and noticed that most companies charge more for a Minolta 3050 drum than a 4050 drum. Let me state that the drums are the same. The only difference is the front drum pin. If you're not a dealer save yourself \$30.00 to \$50.00 and order the 4050 drum pin for your 3050's. 4050 drum pin: 1076-0231-02

### CS PRO 3050/4050 CO200

Yes ladies and gentleman, I have a PERMANENT fix for your 200 codes. Take the corona advance motor and throw it away, YES throw it away! In fact, throw away that stupid photosensor and those pain

in the ass cables. After throwing away all the junk that should have never been put on the main charge to begin with, pick up the phone and order the "fixed corona" modification. That right now you can spend more time doing other things, like cleaning the machine or replacing those crap teflon rollers.

part #  
3050-1135-0099-01  
4050-1134-0099-01

These are the part numbers for the fixed corona E-PROMS. They should also include the new fixed corona hardware. That's right, it uses a single piece of corona wire instead of the spool that we have all come to "love".

CS PRO 6000  
Problem: CO200  
Solution: Add additional drum ground\*

\*Minolta has come out with a factory ground plate. The part # is: 1075-5521-01 Slide open the drum assembly, remove the dv unit, then the drum. The ground plate installs on the REAR drum lock, the arm that holds the drum secure. When you reinstall the drum and close the locking arm, the plate will contact the drum bearing and drum/image unit carriage.

Problem: Fuser noise, but no severe jamming conditions or copy quality problems.  
Solution: Replace the twin metal gears on the fuser drive, machine frame. Located between M6, fuser drive motor and actual fuser unit. Part # 1075-2574-02

Problem: Bank or blinking control panel  
Solution: There are two pcb's under the panel, each has a couple of small round metal spots that are not linked to the circuit track, scratch off the clear coating and solder ground wires to one of the metal spots on each pcb and ground them to the frame, also ground the frame of the LCD.  
The panel has a floating ground and freaks-out when there is a high static build up. I have only seen 4 6000's do this, this mod has fixed all 4 of them. Advise from Minolta that failed: replace PWB-A, B, C, Control panel and cut all wire ties between PWB-B and panel

#### EP-350/350Z

**COPY QUALITY**  
Adjusting EP-350 lamp intensity for both auto and manual contrast settings.  
1. Cheat front interlock  
2. Remove small black cover on right front of machine to expose pwb-G  
3. On pwb-G press switch F  
4. On console, press 3 then Start. (Lamp will light, motors will run)  
5. On pwb-G, rotate pot RT1 to new setting  
6. Press switch F  
Check Copy Quality

#### TRANSPORT ROLLER

Since parts for the Minolta 350/350Z are no longer being provided by Minolta, I was pleased to find Wright-Moore was still making available the paper separator roller located underneath the separator mylar. As you may be aware that particular roller turns to "sticky goo" after time and this causes jamming and wrinkling on the deletion (rear) edge of the copy. The part number is 1028-1502-02 and the cost is about \$15.00 plus they charge \$10.00 for orders under their minimum of \$50.00.

#### EP-370

**COPY QUALITY**  
Intermittent background. If you can't get rid of this problem by replacing the coronas, then it's probably the corona wiring harness. This part is prone to damage. It's a real pain to replace though, so if you can you might want to just try to sell them a newer machine.

#### ELECTRICAL

Flickering or blank display and possibly high pitched hissing sound. Machine inoperable. The voltage regulator board under the top left cover that faces up is probably bad. Replace.

#### EP-400 SERIES

##### RANDOM C CODES

This is probably caused by a dry solder joint and probably on PWB-C. Usually occurs where plugs connect.

#### EP-410Z

##### MULTIPLE SYMPTOMS

Minolta 410Z Problem; Very strange behavior, symptoms will change erradically. Some of my symptoms, jamming at the first switch, changes to jamming at the fuser switch, if you unplug the machine then replug and turn it on there are no display lights and the machine acts dead. If you wait in that condition the machine will start ticking faster and faster until all the lights pop up and the machine runs fine. Solution P U 1 board(DC power unit) back of machine lower right hand side, check at p.j.2 the only two pin connector on that board. Voltage should be 5.2 v. If not adjust the pot to get correct reading. Konica 1803/2803 Problem; Lines worn into the drum from the cleaning blade. Solution; Relay on back right side that controls the side to side shift motor for the cleaning blade. That motor with the worm gear on it is not working. Clean the relay contacts and your back in business. You can check by listening or watching that motor works on initial copy run. Berny Buta The Copier Doc.

#### EP-410Z

Symptom: Blurred, jittered lines

Cause: Erratic Drum movement / not turning smoothly.

Cure: Replace the Developer Spacer collars. Evidently these spacers when worn will cause the gap between Drum and Developer to shrink just enough for the DV to bind up the drum movement. Had to see it with my own eyes. Couldn't believe it until I tried it. Got this tip from the Smarka bulletin board.

Thanks a lot whoever you are !

#### EP-410/470

##### POWER UNIT

Flashing keyboard or other int. electrical symptom. These machines use a Voltage Regulator IC in the P.U. which is known to blow. Replace with STK 7563F, available anywhere.

450

Blank copies

Open rear cover, look for interlock under drum shaft. if not made it shuts off power to HVU. This interlock will get bent due to constant clamshell slamming.

#### EP-450Z

##### CO CODE

C-0 on an EP-450Z is almost always caused by a bad power supply unit (PWB-C) located under the fuser (assuming mechanics are OK). If this unit is bad, it can also cause ALL symbols in print switch to flash at once.

## DEAD MACHINE

This may or may not be common knowledge, but after you've ruled out the obvious things like interlock switches and fuses, you may want to try snipping ZD101 on the main board. This is a protection device which can go bad and you probably shouldn't run the machine indefinitely without it in there, but at least it will get you up and running.

## C-6 CODES

It's been my experience that the C-6 code is almost always a false alarm. Generally, the photosensors for "home position" and "registration" on the rear of the machine just need to be blown off or brushed off. I usually go at it from under the glass with a can of compressed air. I have also seen the lens home positioning switch malfunction and give the C-6 code.

## INTERMITTENT C-9 CODES

Replace the transistor on back side of A-Board mount.

## UNLISTED SERVICE CODES

Not listed in service manual but has this code in 90% of machines out there. Hit SW121 Service man switch for F-mode Enter 7 for F-7 mode. Press the print button. Machine will run and toner will feed for 11 seconds

470

Developer spewing at rear of dv unit, dv bunches up on mag roller also light copies. Open the dv unit, removver all dv (starter), if you look at the plastic guide between the agitation roller and the toner conveyance rod (corkscrew roller) there is barley enough room for the toner mixture to move into the large part of the dv tank. also causes poor mixing. cut out 2 inches of the partition on the rear side for better flow. be sure to get out any plastic fragments as these dv units are so easy to contaminate anyway.

EP-470Z

## INTERMITTENT C CODES

This may sound dumb but I've seen it twice. Check the front cover interlock actuator. It's a metal tab and it may be bent and only making partial contact.

## NOISE

If you hear a chattering noise that comes from the rear left side of the machine when the paper is feeding it may be the feed clutch,(or clutches). You can try to clean them, but it's a real pain just to get to them, so you're probably better off just replacing them. If you do try and clean them, be very careful not to lose the clear mylar washers that are inside. They also have metal washers that are beveled on one side. Be sure to replace these the same way that they came off.

EP470/490

## COPY QUALITY

Premature lines on drum and short drum life.

Cause: Slider is wearing away with age. As much as 1/16 inch in some cases.

Reason: Continuous rubbing on the eccentric gear will cause wear. It will not cause lines on copy till drum is worn.

Solution: Replace the slider

Maintenance Tip: Occasionally grease the surface of the eccentric gear.

EP 490 Z

## NOISE

Moaning sound during warmup rotations but not while copying.

Cause: The black Developer clutch goes dry and makes a moaning sound when it is not energized.

Solution: Remove and lube clutch with grease. To remove this clutch you must open the clamshell as wide as you can so that you can remove the bottom screw holding the clutch holder plate to the copier.

You should also make note that the bottom clutch is connected to the black connector and the top one goes to the white connector.

#### PAPER FEED

Folding just before the registration.

If you are having Z folding problems in the area just before the registration. You should remove the shock absorbing pad on the pre-registration roller clutch arm. It gets sticky after a few years and gives the clutch a slight delay causing too much buckle in the paper during registration. To get at this clutch you must remove both plates on the back of the machine underneath the main circuit board. Be very careful not to loose any of the bushings and to only clean the clutches one at a time because all of the parts are interchangeable but the springs are wound differently. The best way is to do this is one clutch at a time.

### EP-570

#### COPY QUALITY

Blank copies or thin white stripes in the copy can be a result of a bad or arching drum ground. May happen after you changed the drum with a generic one (since the gear and innards have to be replaced).

Be VERY careful to put the little brass things that hold the end plates on in the right spots. If not, the ground will arc to the ground plates on the cleaning unit and cause the above problems, or worse, take out the "C" board.

### 1030

Problem: Toner dumping near the back edge of the copy.

Some people think that you should turn the toner bottle when you put it in because of the spiral lines. If they turn the bottle, they bend the spring in the toner hopper clutch.. This causes the bottle to turn all the time, running all the toner into the machine. To check, open door and cheat switch. Press print and see if bottle turns all the time. If it does, change the clutch. I recommend you change all 4 parts of clutch. If the spring was twisted, the clutch gear, the collar and the holder may be damaged too.

### EP or CS Pro: 1031

Problem: Jitter lines on copies.

Solution: Clean the spring and boss in the pickup clutch, the factory grease gets hard and stalls, and were talking right out of the box.

### 1050/1080 etc blank copies

On Minolta 1050/1080 series machines, when you get blank copies & have eliminated end caps etc. Replace capacitor C201 on HV unit. I've had this fault loads of times & this has worked every time.

### EP-1080

#### INTERMITTENT BLANK COPIES

When the 1080 sometimes copies blanks , check the connecting springs for the main charger. They will move out of position and cause a poor connection.

#### BLANK COPIES

Also need to clean the transfer separation block between the plastic and the metal frame that will correct the problem. I'm a full line Minolta tech.

#### BLANK COPIES

The high voltage unit on the 1080/1081 has a circuit that detects corona discharge to ground. If it detects discharge it will cut off, but the machine has no idea that it cut off, so the result is blank copies. The only time I have seen this myself is with a cracked rear endblock on the transfer/separation (T&S) assy. If it is a quiet environment you can usually hear it zap to ground about 3 short pops (kind of sounds like ticking) before it goes blank. In the first case I dealt with, the customer would be running copies just fine, and then all the sudden the copies were blank. I believe to reset it you have to turn it off and back on, and then it would make copies again for a while. I am school trained on this machine, I went round and round with this through tech support when it first happened. I guess you might not want all the detailed info, so the

short version is that the high voltage unit cuts out on its own when it detects a high voltage leak, check coronas and check endblocks for cracks. This machine has no C0200 code.

#### Reconnect Counter

After replacing drum, machine warmed up but print button did not go to green. Found I had not re-connected image unit counter (2 pin plug in connector). No free copies on this model!!

#### 1080, 2080 and 2050's

For Minolta copiers that you do not adjust the exposure with a pot, use blue paper while running an f-5. This will help compensate for a worn drum without using any user choice modes. This works well on 1080, 2080 and 2050's

#### 1080,1081

Black lines similar to drum blade failure. Replacing blade cures problem temporarily. Replace drum collars front and rear on mag roller

#### 1080/81/83/2010

Problem: Add toner when bottle IS turning

Solution: Remove the "flap" inside the hopper assy. NOTE: there is a flap for toner only. The flap gets stuck and will not open to let the toner flow into the DV unit

#### EP-2050

#### INTERMITTANT "OUT OF PAPER" LIGHT

Paper empty senor prone to collect paper dust. Clean sensor with canned air or blower brush.

#### STOPS DURING MULTICOPY

During multicopy machine will count down ok but stops after every copy cycle. User must push print button every time to get all of copies. Replace ATDC sensor. Sensor checks for correct toner mix after every cycle. If senor becomes flaky it will cause the machine to stop after every copy cycle.

The control panel LEDs are out.

There are two rows of black boxes in the LCD display. The copier appears to be ready to copy - heat lamp cycles and all, however the print key as well as all others are dead. Replace the PWB-B this corrected the problem.

#### EP-2050 TONER RESET

1.- Stop, 0, stop, 1; will get to Tech modes. 2.- Press one for tech card 1, 3.- Press the key above OK key 4 times (until the erase 4 ligths up). On the Screen, you will see the toner count and set. Erase the count counter but do not erase the set (unless you know what are you messing with). Note: make sure you took out the wasted toner from the back of the machine panel reset to get out

#### 2080

Just a simple DON'T tip

Do not replace the lower cleaning rod with a 1080 cleaning roller. The 2080 has an upper cleaning roller, unlike the 1080/81/83/2010, adding the cleaning roller to the lower roller, even though it fits, will put too much oil on the fuser roller and cause intermitt. skewing in the fusing unit.

#### EP-2100

#### COPY QUALITY

White or blank bands running across the copies(side to side). Problem may come back even after you've tried to repair by replacing IU. Problem is poor drum ground. Remove the IU and sand the drum shaft with emery cloth. Even sand inside the journal on the end of the drum. Small dab of conductive grease will help also. FUSER

Won't heat up, lamp and thermal fuse check o.k..The problem is probably the solid state relay located in rear of machine. This problem is common to a lot of Minolta copiers.

#### COPY QUALITY

Intermittent background. The spring loaded mechanism that holds the grid on the charge corona

sometimes gets pushed in by the user and releases it, leaving it half hanging down intermittently touching the drum. Just reseat the grid.(Hopefully you won't have to replace a scratched drum.)

#### COPY QUALITY

Black bands across copies.

Cause: Intermittant ground connection at drum ground.

Solution: Remove the drum unit and clean both the drum grounding pin that fits into the middle of the back of the drum and the spring contact inside the drum itself. You should then lube the contact with conductive grease this will stop the corrosion that causes this problem.

EP 2120/21/50/51

#### NOISE

If you have a noisy image unit in one of these models you can repair it by cleaning and lubing the toner add clutch with moly grease. You can check for this problem by removing the toner hopper and actuating the toner add solenoid the noise should stop.

EP2120/2121 & EP2150/2151

IU reset procedure

- 1) Remove toner bottle from machine.
- 2) Turn OFF machine then: On the 2120/2121 jumper pins 4 and 6 on PJ3A on the A board at the back of the machine. On the 2150/2151 jumper pins 3 and 8 on PJ3A on the A board at the back of the machine.
  - 3) (a) Turn the machine ON when warmup is complete Initialization (F8) will start. (b) After the auto (F8) has started then immediately remove the jumper from PJ3A
  - 4) AFTER the completion of (F8) reinstall the toner bottle

EP2130/2130PRO

IU reset procedure

- 1) Remove toner bottle from machine.
- 2) Turn OFF machine then jumper pins 3 and 5 on PJ3A on the Aboard at the back of the machine with a 1/16 amp picrofuse. (You may want to bend the ends of the wires on the fuse to help it stay put)  
NOTE DO NOT USE ANYTHING OTHER THAN A 1/16 AMP PICOFUSE TO DO THIS. (KATUN PART # 010515)
- 3) Open the Copier Clamshell upwards, Then cheat the front door interlock switch. Relace the Image Unit and pull it out about 2 inches.
  - 4) (a) With the clamshell still open turn the machine ON when warmup is complete Initialization will start. (b) After the auto initilization has started WAIT until the SECOND ZERO has flashed on the display. Then immediatly insert the image unit the rest of the way into the machine. While the machine is still cycling close the clamshell.
- 5) Only AFTER the completion of the initilization remove the fuse if it was sucessful the fuse will be open. If the fuse has not opened repeat the above procedure.

EP 2151

#### BLANK COPIES

CHECK HIGH VOLTAGE BLOCK ON INSIDE TOP FRAME THIS CONNECTS WITH IMAGING UNIT WHEN SLID IN MACHINE THIS PART CRACKS AND HV ARCS AND BURNS HOLE IN PLASTIC SHORTING OUT HIGH VOLTAGE NEW PART IS CREAM COLOR INSTEAD OF CHARCOAL MINOLTA PART # 1067-4021-01

EP 3050/4050

NOISE

Problem: Noise in the fuser section

Cause: Bushing in center of gear worn out then it wears out the nylon drive gear.

Solution: Replace both parts as a pair and use TEFLON GREASE (Radio Shack's high temp. works great).

Part #'s 1136-2517-01 & 1134-5774-02

## EP or CS Pro: 3050/4050

Problem: Premature drum rotational marks.

Solution/Question: Are you using Katun Kynar to start the blade? Are you using Katun blades and not removing the Kynar that comes on the blade? Are you using the Kynar powder that Minolta sends with each blade? If you are, DON'T. The kynar gets hard after riding on the new style regulator plate and scratches the drum.

Problem: After a PM copies go light in about 2k.

Solution: Do NOT run an FF, an F8 MUST be run THEN perform manual adjustment and then F5.

Problem: Dog-earing into duplex unit

Solution: Remove duplex drawer and open left side door. Look into the duplex cavity. On the left side of the duplex entrance plate there are 5 small mylars. If they are not straight but rather pointed down, the paper will be deflected straight down into the duplex tray and dog-ear. These mylars get bent from users pulling the duplex drawer out during jam removal and ripping a partially lodged copy.

## EP 3120/50

### BLANK COPIES

Blank copies? Checked the coronas and power supplies? Remove the upper left cover and check the switch in front of the fan. When the fan is turning the switch actuator should be forced to the open position by the fan. If it is not moving the easy fix is to snip and crimp the wires. This sensor was eliminated from later model 3150's so it must not really be needed.

### NOISE

A preventative tip: Check the spacing between the drum and the front pin. If there is too much play, the drum will ride forward and cause the rear drum collar to wear out causing DV unit bounce...lots of noise. The easiest way to fix the possible problem is to "slightly" turn in the tabs on the guide rail so as to pull in the sides of the drum unit frame. The rear of the drum should be even with or close to even with the outer edge of the grey sleeve at the rear of the drum unit.

## EP 3150

### BLANK COPIES

There is a reed switch in front of the exhaust fan. the switch is fastened to a foil. when the fan blows (and Minolta fans do blow) the resistance of the air current forces the switch to close thus sending 24volts to the HVT.sometimes the switch is dirty and can be cleaned. A new fan is about \$110.00

## EP 3170

### TRAIL EDGE DELETIONS

Problem:One-inch wide blank area on the trailing edge. Explanation: Loop of paper (between registration the roller, driven by registration clutch (CL2) and transport roller, driven by transport clutch (CL3)) is too big, because of the condition of these clutches. This will cause transport roller sensor PC1 to become de-actuated, which respectively should de-energize source of the charge. This problem will also occur when paper is fed through manual feed or optional universal cassette (which does not involve take-up mechanism driven by take-up clutch (CL1)). Solution:1 Quick-fix. Spray CL2and CL3 with Tri-flow or any other light spray lubricant without dissassembling. 2) Service clutches properly. 3) Replace clutches.

### HIGH VOLTAGE PROBLEMS

When troubleshooting HV problems on 3170 Minolta Ground HV on signal. This will turn HV on and you can meter or observe the coronas. Remove Drum Carriage unit and replace charge corona, stick a ink pen in interlock, and you'll be able to see all working.

### BLANK COPIES

If you have run across a Minolta 3170 Making Blank Copies / No error code short the HV ON lead on the

HV board to ground to troubleshoot.

In a good working copier the coronas will glow and you will hear the HV units High pitch Squeal. In a bad copier, you will hear the HV energize and de-energize. Be careful not to become one with the ground yourself (could be painful)

Most times the corona blocks are bad (leaking voltage to frame)

3170/4210/4233

Problem: Blank copies

Solution: The main charge rear block will arch internally and not give common signs of arching. Replace block.

EP-3170/4210

C-9 CODES

There is a small plate on the rear of the paper draw that activates the gear system and paper lift motor. This contact point is of poor design. To fix it you need to raise the height of the actuator and thus make a better contact. Use a torch and you will see the problem.

EP- 4050

C200

First unplug the main charge corona take up motor as it may break the corona wire. next the wire is very thin and tends to oscillate out of control and cause the C0200 code. If a new wire spool, or grid doesn't alleviate this problem simply use electrical tape on the inside housing of the main charge corona assembly.

C200

There is a new part # for the charge corona. The old style has a problem with the wire cutting the block and breaking. The new ones have a brass post to prevent this. part# 1139-0313-01.

EP-4230

#### DEVELOPER CLUTCHES

The minolta 4230 uses 3 developer clutches. All are exactly the same if the clutch for the black dev unit goes bad or is making a lot of noise you can use one of the color clutches. They are a pain to get to, but most machines never had color units installed and so they are like brand new. Also if you fail to put the black dev clutch back in place of the color one don't worry, the machine doesn't care if it is there or not.

#### COPY QUALITY

PROBLEM: Distortion of image about three inches from top of page. Mostly on 8,5x14.

SOLUTION: Check gear on registration clutch (very carefully) for a crack.

#### POWER LOSS

A very unusual problem -- can be caused by spring plate above RY-1 vibration causes it to drop down and hold the plunger in the de-actuated position. Therefore RY-1 cannot energize!

#### SCANNER CRASH

With age the APS arm (under the glass) sags downward. At a certain stage it will interfere with the scanner carriage movement and cause a violent crash. Damage to the scanner cable may result. The APS arm has a hex-key adjustment at the top near the pivot point. Later model machines have a hole drilled in the top cover to allow easy access. It is worth checking every now and then. You can check the height of the APS arm quite easily every time you take the glass off. If it feels loose and sloppy, take the top cover off and tighten the screw.

#### JAMMING

If all the usual stuff doesn't work and you still have a pre-registration jamming problem, check that the upper guide just before the reg roller isn't pinching the paper. Try prying it upward with a screwdriver to enlarge the space underneath so the paper can pass through to the reg roller freely.

#### SKIPS AND NOISE

The gear and the reg roller clutch frequently cracks and spreads apart causing skips, jams and clicking sounds. Replace the entire clutch.

#### ADF BELT

If the ADF belt sticks to the drive rollers and won't turn, remove old rubber from roller and replace it with feed roll tape this cured the problem without replacing the rollers. Feed roll tape can be ordered from Sel Drum or Alternative Technical Services.

Problem: Blackline on lead edge.

Solution: Remove the black foam sponge from under the scale plate.

#### EP 4230/4000 SERIES TONER DISPENSING DV

I've done this twice now. If you have to clean any part of the drum unit/DV unit, be very careful. DO NOT vacuum, and DO NOT blow it out with canned air. The ATDC sensor is so fragile that the static electricity caused by these two practices will blow it up. As a result, no toner gets to the DV unit and the copies get lighter and lighter. OR... the thing gets stuck in the OPEN position and the DV unit gets toner at a constant rate. Over toned copies and toner dumping will result.

EP-4230/4233

#### POWER LOSS

Symptom: When the ON-OFF switch is toggled up to turn on the copier, a "holding path" is engaged through a small circuit board of the switch is soldered to. This holding path does not hold and the power relay will engage when you press the switch, but will drop out (dropping power to the copier) when you let go. Also, with the door open, the machine is powered up normally (for a door open condition) with the control panel lit. But when the door is closed (or interlock cheated) the power relay drops out, dropping power to the copier.

Problem: Ask yourself if you just changed the developer. If so, did you disconnect the ATDC sensors like you should so that you don't pop the sensor as the unit is vacuumed out? If so, you may have reconnected the two little plugs under the toner bottle backwards! (it's easy to do since both plugs are two pin plugs and the wires are totally black from baked on toner). If this happened, then you probably took out the Paper lift motor driver board. Logical isn't it? That's the board right down under where the key counter goes. The holding path for the power relay goes through that board. Also, there is a mod on that switch and the tiny little relay on the circuit board that the switch is soldered to has been upgraded.

EP4230, 4300, & 5400

#### INTERMITTENT LOCKUP AND C-2 CODES

Cause: Hairs from the static brush on the fuser or duplexer get into the transfer/seperator coronas. These fine hairs will continue to fall if the anti static brushes are not replaced causing chronic problems. You should blow out the machine with compressed air which I have found to be the only way to clear the machine of all the hairs.

EP-4230, 4300, 4233, 2100, 3120, etc.

C-5 / C-7

Around 91.354% of C-5s and C-7s are related to the solid state relay that turns on the fuser lamp. Always

carry one in your trunk if you work on any Minoltas at all. The part No. for the most common SSR is 9343-4820-11. This is used in all but the 2100/3120 series.

#### EP-4233

##### GRINDING NOISE

The little white spacers on both ends of the mag roller wear out. The mag roller has springs on it (as anyone knows who has had to use a jig to adjust the doctor blade gap) and when these spacers wear out, the mag roller is pushed TOO CLOSE to the drum. This causes binding which wears out the drive gears on the DV unit and the DV unit drive clutch. Two clues: If the drum has rubbed or worn spots on it and if the white spacers have left black streaks on the drum where they ride on it, then the spacers are bad. Look at the spacers, if they have black worn edges, they have to go. These things are a real pain to change on this model, and they are constantly wearing out, but a quick fix is to pull out the drum and lessen the doctor blade gap, at least this will get you running until the spacers can be replaced.

#### EP-4300

##### ERRATIC CONTROL PANEL BEHAVIOR

If you're getting crazy control panel problems, even when the machine is sitting idle, remove the control panel and look on the center PCB. You'll find a socketed EPROM, remove this & spray the terminals with contact cleaner and reinsert. Also clean the connectors. We've encountered this problem twice in 1 week (on a 4301 and 4300) and cleaning these things cured the problem instantly on both machines.

#### EP-4300/4301

##### C-6 CODES

Try blowing off the original size sensors on the sensor arm and the mirrors underneath the top.

#### EP-4300/4320/5320/5400/5420

##### COPY QUALITY

The trailing edge end of the copies are wavy. This symptom is most prevalent on the longer papers, ie. 11 X 17 and legal size, but also on the 8 1/2 X 11R. (The paper itself is wavy-not the copy.) The problem is the exit roller. The little angle shaped tires wear out and they hold up the paper just long enough to let the heat rollers make waves in the paper. Change those exit rollers when this happens. The part number is 1077-0152-01.

##### CONTROL PANEL BUTTONS/SCREWS

The screws attaching the control panel circuit board (small one w/print button on it) to the panel housing seem to back their way out over time causing the print button & number keys to feel "mushy". Not a big deal. However, in one instance, a screw fell out & lodged itself between the frame and "N.C." terminal of the front cover interlock switch.

Result: Machine went haywire any time front cover was closed.  
Note that there is also a board under the control panel where these screws might fall.

#### 4320

##### Jittery copy or looks unfocused in some area's

The machine will have a jitter or unfocused or unsharp area. It runs the width of the page from front of the copier to back of the copier. The placement varies both in location and in number of times on the

page. This problem is caused by a toner build-up on the drum drive gear that is linked to the synchronization roller. The gear is metal and located in the right side of the machine near where it clamshells. This gear has a belt on it that is linked to the synchronization roller. The problem will appear to be caused by either the optics or the transfer/separation corona.

EP-4320/5400

#### C6 CODES

Cause: Defective scanner motor

Reason: Brushes not making contact with commutator.

Solution: Remove the scanner motor back plate, file the brushes square & increase spring pressure to the brushes. (or replace the motor)

EP-4233

#### NOISE

A grinding noise on the Minolta4233 can be attributed to the developer clutch and developer unit. The gears on the developer clutches will be stripped and the developer will be hard to turn. The mag roller will be bound up by the bearing on the rear side by toner/dev. clean and/or replace as needed. Also if not equiped with color dev. units, you may use the gear off the color clutch to get you by until you can get the gear ordered.

EP-5320  
NOISE

If you get noise from the duplexer check the actuator on the stopper solenoid. Some times these come loose and need to be reseated.

5320  
Rippled when Duplexing

As paper exits fuser trail edge is rippled. When duplexing, trail edge now becomes lead edge. The rippled paper then causes jam. Change exit rollers as the rubber becomes hard and changes the speed thru the fuser and forms ripple. This most definitely works and kept me from losing a good deal on a used machine.

5320/5420

Problem: Web won't advance but motor is turning.

Solution: The web motor advances the takeup roller and the orange conveyance roller. Symptom might also include web spewing from fusing unit. Replace the torque limiter, also add a 0.05mm shim under all four screw holes that attach the web box to the fusing unit.

EP-5400

#### COPY QUALITY

White bands across copies or completely faint image Accompanied by possible C2 code

Cause: Corroded or loose spring contacts mounted in transfer/seperator rear block.

Reason: With age these springs and contacts oxidize.

Solution: Install new springs and clean contacts. Also you may need to replace the end block itself  
Minolta part # 1052-4501-05

#### PAPER FEED

A large buckle is formed on the trailing edge of legal paper.

Cause: There is toner in the teeth of the pulley sprocket on the main motor shaft .

Reason: The toner box has overflowed or the cleaning unit valve to the collector bob is broken. The timing belt carries the toner to the pulley The toner in the teeth of the pulley cause it to act as if it were larger causing the sync clutch to speed up.

Solution: Clean the toner out of sprocket teeth.

Maintenance Tip: When there has been a toner spill of any kind you should always check the drive belts and pullys for toner accumulation.

#### RANDOM C0 AND C3 CODES

If you are having random C3 and C0 error codes. There are two circuit boards that get bad solder joints on them these are the C-board just above the main power supply (in the lower cabinet at the back) and the main motor controller which is beside the main motor just above the bypass tray on the left side of the copier.

EP 5400, 5420, (probably 4230 and 5320 too)

If you have to service one of these that you've not worked on before and you have a copy quality problem, namely a slightly blurry copy caused by the optics. Check that the scanner is riding on all 4 of it's nylon feet. You can check this by looking at the scanner through the left side of the machine.

The problem here is when the scanner is removed (for replacing exp. lamp) and reinstalled, it is very tricky getting it attached to properly. The screw will go in even if it's not aligned correctly and the scanner will sit cockeyed and rub.

5320/5400/5420

#### Web failure or web motor lockup

Dirty or failing thermistor causes excessive heat, causing the web motor to lock and/or drying the web out.

5420

#### FAILED LIFTING STRUTS

Did ya ever notice how EP-5400's and 4300's never have problems with their lift struts, yet the newer machines like 5420 will always go bad? Sure, they put that nice catch there to hold the machine up but what's the deal? Well, the 5400 struts are cheaper than 5420 struts, and they last forever! I even robbed some used struts off a EP-4300 and put them on a 5420 and they're still holding the clamshell open just fine over a year later. See, 4300's are good for something! :) The part # for the 5400 strut is 1053-3310-01

EP 6000/6001/5050

Problem: C0210

Cause: Bad transfer assy. Blocks

Solution: Replace the transfer blocks Part# 1075-4151-04 Front & 1075-4152-03 Rear

Problem: Jamming at duplex vertical transport rollers.

Cause: Dirty one-way gears in back of copier.

Part # 1075-2671-01 Gear 27T and 1075-2595-01 Gear 35T

Solution: Clean with belt clnr and syringe or remove to cln (2Hrs) or replace. Happens around 1,000,000 copies.

EP-8600/01/02/03

#### COPY QUALITY

When changing the anti-spill plate on the cleaning unit, Make sure you put the screws back in the proper places if not in the proper place they may cause the drum blade to chatter on the drum causing copy quality problems(such as lines on the drum)

#### CORONA CLEANER PROBLEMS

If you have problems with the corona cleaner getting stuck, just take out the charge corona, manually move the cleaner to its home position (at one end), replace the corona and leave the motor unplugged.

You don't need it anyway.

#### INTERMITTENT LINES

If you encounter black lines that go away by cleaning the drum blade but end up coming back after a couple thousand copies - Try cleaning and lubing the drum blade shifting gears.

#### EP 8603

#### CONSISTANT C0040

When consistent C 0040 codes appear on an EP 8603, and all normal fault finding has been done, the cause can be attributed to excessive noise. Try replacing the front interlock switches. Arcing in these switches can cause numerous problems.